

What is claimed is:

1. A wing device for wear by a user, the device comprising:
a user harness having a left shoulder strap and a right shoulder strap;

left and right wings each spanning between a first end and a second end, each of said wings including:
a ram-air canopy;
at least one wing control handle connected to said ram-air canopy between said first and second ends for permitting a user to manipulate said ram-air canopy, and a flexible strap proximate said first end;

wherein said left and right wings and said left and right shoulder straps each include attachment means for attaching said flexible strap of said left wing to said left shoulder strap and said flexible strap of said right wing to said right shoulder strap.
2. A wing device according to claim 1, wherein each of said ram-air canopies has a top panel, a bottom panel, and a plurality of vertical ribs and a plurality of sidepieces between said top and bottom panels to define a plurality of air cells, each of said plurality of air cells having an open front portion and a closed rear portion, said open front portion defined by a top edge adjacent said top panel, a bottom edge adjacent said bottom panel, and left and right sides defined by said vertical ribs, said open front portions combining to define a leading edge of each of said wings, and said closed rear portions defining a trailing edge of each of said wings.
3. A wing device according to claim 2, wherein each of said plurality of air cells defines a three-dimensional shape and said device further comprises stiffening means positioned along said leading edge, in said top, side, and bottom edges of said open front portion, and on said bottom panel, for maintaining said shape of said air cells.
4. A wing device according to claim 2, wherein said open front portion includes stiffening members along said top, side, and bottom edges.
5. A wing device according to claim 2, wherein said bottom panels include stiffening members.
6. A wing device according to claim 2, further comprising:

an outer strap joined at a plurality of positions along said bottom panel; and

stiffening members joined with said bottom panel, said outer strap and said stiffening members defining a stiffening strut adjacent said rear portion.

7. A wing device according to claim 1, wherein said attachment means are selected from the group consisting of a snap buckle, a conventional buckle, a strap, a tie, and a hook and loop fastener.
8. A wing device according to claim 1, wherein each of said wing control handles are adapted to be grasped by the hand of a user.
9. A wing device according to claim 2, wherein each of said wing control handles include a leading handle end and a trailing handle end, said leading handle end attached to said bottom panel proximate said leading edge and said trailing handle end attached to said bottom panel at any point from about the mid-point between said leading and trailing edges to said trailing edge.
10. A wing device according to claim 2, wherein each of said plurality of sidepieces includes holes to allow air to flow between adjacent air cells.
11. A wing device according to claim 2, wherein one or more of said plurality of air cells includes one or more vents, said vents defined by openings in said top panel.
12. A wing device according to claim 1, further comprising a connecting portion joining said right and left wings.
13. A wing device according to claim 1, wherein each of said wings are adapted to automatically retract adjacent the user if the user is not grasping said at least one handle.
14. A wing device for wear by a user, said device comprising:

left and right wings each spanning between a first end and a second end, each of said wings including a ram-air canopy and at least one wing control handle positioned between said first and second ends, said at least one wing control handle adapted to be grasped by the user to allow said wings to be manipulated independently of one another and substantially in accordance with the motion of the user's arms, each of said ram-air canopies having a top panel, a bottom panel, and a plurality of vertical ribs and a plurality of sidepieces between said top and bottom panels to define a plurality of air cells, each of said plurality of air cells having an open front portion and a closed rear portion, said open front portion defined by a top edge adjacent to said top panel, a bottom edge adjacent said bottom panel, and left and right sides defined by said vertical ribs, said open front

portions combining to define a leading edge of each of said wings, and said closed rear portions defining a trailing edge of each of said wings; and

a user harness having a left shoulder strap and a right shoulder strap;

wherein said left and right wings and said left and right shoulder straps each include attachment means for attaching said first end of said left wing to said left shoulder strap and said first end of said right wing to said right shoulder strap.

15. A wing device according to claim 14, wherein each of said plurality of air cells defines a three-dimensional shape and said device further comprises stiffening means positioned along said leading edge, in said top, side, and bottom edges of said open front portion, and on said bottom panel, for maintaining said shape of said air cells.

16. A wing device according to claim 14, wherein said open front portion includes stiffening members along said top, side, and bottom edges.

17. A wing device according to claim 14, wherein said bottom panels include stiffening members.

18. A wing device according to claim 14, further comprising:

an outer strap joined at a plurality of positions along said bottom panel; and

stiffening members joined with said bottom panel, said outer strap and said stiffening members defining a stiffening strut adjacent said rear portion.

19. A wing device according to claim 14, wherein each of said wings are adapted to automatically retract adjacent the user if the user is not grasping said at least one handle.

20. A ram-air canopy, comprising:

a top panel, a bottom panel, and a plurality of vertical ribs and a plurality of sidepieces between said top and bottom panels defining a plurality of air cells, each of said plurality of air cells having an open front portion and a closed rear portion, said open front portions defining a leading edge of each of the canopy, and said closed rear portions defining a trailing edge of the canopy, wherein each of said plurality of air cells has a three-dimensional shape and a plurality of stiffening

members to substantially maintain said three-dimensional shape independently of whether air is flowing through said plurality of air cells.

21. A ram-air canopy according to claim 20, wherein said plurality of stiffening members are positioned along said leading edge, in said open front portion, and along said bottom panel.

22. A ram-air canopy according to claim 20, further comprising an outer strap joined at a plurality of positions along said bottom panel, wherein said outer strap and a plurality of said plurality of stiffening members define a stiffening strut adjacent said rear portion.

23. A ram-air canopy according to claim 20, wherein said open front portion includes a portion of said plurality of stiffening members along said top, side, and bottom edges.

24. A ram-air canopy according to claim 20, wherein said bottom panels include a portion of said plurality of stiffening members.

25. A wing device for wear by a user during downhill alpine activities, said device comprising:

left and right wings each spanning between a first end and a second end, each of said wings including a ram-air canopy, at least one wing control handle positioned between said first and second ends, and a flexible strap proximate said first end, said at least one wing control handle adapted to be grasped by the user to allow said wings to be manipulated independently of one another and in accordance with the motion of the user's arms; and

means for flexibly attaching said left and right wings to the user.

26. A wing device according to claim 25, wherein each of said ram-air canopies having a top panel, a bottom panel, and a plurality of vertical ribs and a plurality of sidepieces between said top and bottom panels to define a plurality of air cells, each of said plurality of air cells having an open front portion and a closed rear portion, said open front portion defined by a top edge adjacent to said top panel, a bottom edge adjacent said bottom panel, and left and right sides defined by said vertical ribs, said open front portions combining to define a leading edge of each of said wings, and said closed rear portions defining a trailing edge of each of said wings.

27. A wing device according to claim 25, wherein each of said plurality of air cells defines a three-dimensional shape and said device further comprises stiffening means positioned along said

leading edge, in said top, side, and bottom edges of said open front portion, and on said bottom panel, for maintaining said shape of said air cells.

28. A wing device according to claim 25, wherein said open front portion includes stiffening members along said top, side, and bottom edges.

29. A wing device according to claim 25, wherein said bottom panels include stiffening members.

30. A wing device according to claim 25, further comprising:

an outer strap joined at a plurality of positions along said bottom panel; and

stiffening members joined with said bottom panel, said outer strap and said stiffening members defining a stiffening strut adjacent said rear portion.

31. A wing device comprising:

a. a harness wearable by a user;

b. left and right wings, each including a ram-air canopy; and

c. a connector that connects said ram-air canopy to said harness, wherein said connector permits said ram-air canopy to be rotated about at least two mutually perpendicular axes relative to said harness when said harness is worn by a user.

32. A device according to claim 31, wherein said harness has a portion that is located proximate the shoulders of the user when said harness is worn by the user and said connector is connectable to said portion.

33. A device according to claim 31, wherein said connector permits said ram-air canopy to be rotated about each of said at least two mutually perpendicular axes through at least 90 degrees of movement.

34. A device according to claim 31, wherein each of said left and right wings further includes at least one wing-control handle.